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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/546,227	04/10/2000	Kazuhiko Koike	PM268032	2762

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EXAMINER

JOHNSON, EDWARD M

ART UNIT

PAPER NUMBER

1754

DATE MAILED: 08/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/546,227

Applicant(s)

KOIKE ET AL.

Examiner

Edward M. Johnson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 73-78,80-99,102 and 103 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 87-93 and 103 is/are allowed.
- 6) ☒ Claim(s) 73,76-78,80-86,94-99 and 102 is/are rejected.
- 7) ☒ Claim(s) 74 and 75 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 24,25.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 73, 76-77, and 80-83 are rejected under 35 U.S.C. 102(b) as anticipated by Guile et al. US 5,716,899.

Regarding claim 73, Guile '899 discloses catalyst comprising a pore-impregnated ceramic body (see abstract).

Regarding claim 80, Guile '899 discloses cordierite, Si, and Al (see column 3, lines 27-38 and 46).

Regarding claims 76-77, 81-83 Guile '899 discloses vanadium oxide and copper filling the pores (see column 7, lines 44-48) and ceria (see column 3, lines 27-38).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the

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art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 73, 76-86, 97, and 102-103 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichii in view of Beauseigneur et al. 5,346,722.

Regarding claims 73 and 77-86, Ichii '885 discloses cordierite honeycomb (see column 3, lines 43-47) with a lattice defect with oxygen vacancies and oxygen storing capability (see column 1, lines 63-66; the term "capability" indicating oxygen may or may not be stored), a composition of more than 48% by weight (see column 5, lines 29-30), and a honeycomb catalyst carrier without a coating (see column 1, lines 17-19), heating to form microcracks, and reheating (see column 4, lines 60-67).

Ichii '885 fails to specifically disclose ceria, catalytic metals, and pore size of 100 nm or less.

Beauseigneur '722 discloses ceria (see abstract), transition metals (see column 6, line 29 and column 7, lines 65-68), and pore size of less than 5 microns (see column 3, lines 67-68).

It is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the pore diameter, ceria, and metals of Beauseigneur in the honeycomb cordierite of Ichii because Beauseigneur discloses his

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ceria as particularly preferred (see column 6, lines 54-55), in a method of improving thermal shock resistance (title), in a honeycomb cordierite (see column 1, lines 5-24), to support catalyst metals for use as catalyst (see column 7, lines 65-68).

Regarding claims 76-86, Beauseigneur '722 discloses pore diameter less than 5 microns (see column 3, lines 67-68) and catalyst metals (see column 7, lines 65-68), including noble metals (see column 8, lines 65-66).

Regarding claim 77, it is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use Pt as a catalyst metal in view of Applicant's admission that such catalysts are "widely used" and "conventional" (see specification, page 1, second full paragraph).

Regarding claim 78, it is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use pores of 0-50 microns because Ichii discloses microcracks on particles of 50 microns, which disappear (see abstract and column 8, lines 52-55).

Regarding claim 97, Ichii discloses mixing and pouring, both of which would cause vibration in a liquid.

Regarding claim 102, Ichii discloses $2\text{MgO} \cdot 2\text{AlO}_3 \cdot 5\text{SiO}_2$ (see column 5, line 29).

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5. Claims 94, 96, and 98-99 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichii '885 as applied to claim 73 above, and further in view of Knapton et al. 4,189,405.

Regarding claim 94, Ichii fails to disclose CVD or PVD.

Knapton '405 discloses chemical vapour deposition (see column 5, lines 11-19).

It is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the CVD of Knapton in the catalyst of Ichii because Knapton discloses the CVD in an intermetallic catalyst (title) to form an alumina layer on alloys which do not contain sufficient aluminum to form their own alumina layer (see column 5, lines 11-14) and to give the requisite compound (see column 2, lines 48-51).

Regarding claim 96, Knapton discloses water or an organic solvent (see column 2, lines 56-58), which would obviously, to one of ordinary skill, include organic solvents that have a higher surface tension than water.

Regarding claims 98-99, Knapton discloses impregnation by heating a mixture of chemicals to produce the catalyst (see column 2, lines 40-47).

6. Claim 95 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ichii '885 as applied to claim 73 above, and further in view of Abe et al. 5,489,865.

Regarding claim 95, Ichii fails to disclose supercritical conditions.

Regarding claim 95, Abe '865 discloses drying gel under supercritical condition (see column 3, lines 48-50).

It is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the supercritical conditions of Abe in the catalyst process of Ichii because Abe discloses the supercritical conditions in a catalyst process (title) to obtain a noble metal-dispersed alumina precursor sol or gel (see column 3, lines 47-48).

Allowable Subject Matter

7. Claims 87-93 and 103 are allowed.

8. Claims 74-75 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: an average distance between catalyst particles of 0.1-1000 or 0.1-100 nm in the catalyst ceramic body of the instant claims 74-75 would not have been

obvious to one of ordinary skill in the art at the time the invention was made. It also would not have been obvious to one of ordinary skill in the art at the time the invention was made to fire the honeycomb directly after heating to remove binder in the process of the instant claims 87-93.

Response to Arguments

10. Applicant's arguments filed 7/30/03 have been fully considered but they are not persuasive.

It is argued that Guile et al. discloses... activated carbon or zeolite. This is not persuasive because even if Applicant's assertion is true, the claim still reads on the prior art, since Applicant claims a catalyst using open language "comprising" which allows for the possibility of more than just the claimed catalyst component to be supported on the substrate. It is noted that the features upon which applicant relies (i.e., a catalyst wherein only a catalyst with no activated carbon or zeolite is supported) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

It is argued that from the above, it should be clear toat Guile et al. does not disclose... present claim 80. This is not

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persuasive because Applicant appears to admit that cordierite, silica, and alumina are disclosed as well as such "bodies made up of iron group metals", in Applicant's cited passage of the reference. It is again noted by the Examiner that "replacing" appears to be a process step limitation rather than a product limitation and the presence of all the elements of the claimed product within the prior art is considered to meet a product claim whether or not a replacing process step is disclosed. Applicant does not appear to have responded to this position, which was asserted by the Examiner in the previous Office Action.

It is argued that initially, it should be noted that the Examiner has not in any way indicated how the above-described references are being applied against claim 73. This is not persuasive because all the limitations of claim 73 are incorporated in claim 77, the rejection of which was fully described and is not considered to require any further explanation. The Examiner has added the number "73" in the text of the rejection, rather than just the initial statement, to correct this typographical error pointed out by Applicant.

It is argued that with respect to claim 76, the Examiner merely alleges... (see column 8, lines 65-66). This is not persuasive Ichii '885 discloses cordierite honeycomb (see column

3, lines 43-47) with a lattice defect with oxygen vacancies and oxygen storing capability (see column 1, lines 63-66; the term "capability" indicating oxygen may or may not be stored), a composition of more than 48% by weight (see column 5, lines 29-30), and a honeycomb catalyst carrier without a coating (see column 1, lines 17-19) and Beauseigneur '722 discloses including noble metals (see column 8, lines 65-66). Both of which were outlined in the previous Office Action, contrary to Applicant's assertion.

It is argued that with respect to claim 77... Pt as a catalyst metal. This is not persuasive because metals and metal oxides are claimed in the alternative. Therefore, a disclosure of Pt meets the claimed recitation of "noble metals".

It is argued that in rejecting claim 78... (see abstract and column 8, lines 52-55). This is not persuasive because cracks in a particle of 50 microns must necessarily be less than 50 microns, since the cracks therein cannot be bigger than the particle itself. Similarly, a particle of 30 microns would contain the same inherent feature.

It is argued that at page 4 of the Office Action... (Emphasis supplied). This is not persuasive because the Examiner has corrected the mention of Sato rather than Ichii was a typographical error, which seems apparent in view of the

statement of the rejection and the preceding paragraph outlining that "Ichii fails to disclose...". The specific disclosures of the references are still relied upon and do not appear to be addressed by Applicant.

It is argued that even if the Examiner meant to refer to Ichii... required in claim 84. This is not persuasive Ichii '885 discloses cordierite honeycomb (see column 3, lines 43-47) with a lattice defect with oxygen vacancies and oxygen storing capability (see column 1, lines 63-66; the term "capability" indicating oxygen may or may not be stored). Beauseigneur discloses catalytic metals, which Ichii was said to have failed to disclose in the previous Office Action.

It is argued that nor can any relevant citations... of claims 80-83. This is not persuasive because the statement of the rejection refers to Ichii, and not Sato, which was a typographical error. Ichii '885 discloses cordierite honeycomb (see column 3, lines 43-47) with a lattice defect with oxygen vacancies and oxygen storing capability (see column 1, lines 63-66; the term "capability" indicating oxygen may or may not be stored), a composition of more than 48% by weight (see column 5, lines 29-30), and a honeycomb catalyst carrier without a coating (see column 1, lines 17-19), heating to form microcracks, and reheating (see column 4, lines 60-67). And Beauseigneur

discloses discloses pore diameter less than 5 microns (see column 3, lines 67-68) and catalyst metals (see column 7, lines 65-68), including noble metals (see column 8, lines 65-66). The specific disclosures of the references are still relied upon and do not appear to be addressed by Applicant.

It is argued that in any event, it is respectfully submitted that... Ichii and Beauseigneur. This is not persuasive for the reasons above. The specific disclosures of the references are still relied upon and do not appear to be addressed by Applicant.

It is argued that at page 4 of the Office Action the Examiner also applies Beauseigneur against claims 76-93. This is not persuasive because "93" has been replaced with --86--. The specific disclosures of the references are still relied upon and do not appear to be addressed by Applicant. Therefore, this portion of Applicant's arguments fails to comply with 37 CFR 1.111(b) because it amounts to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

It is argued that in rejection claim 97, the Examiner alleges... vibration in a liquid. Beauseigneur also discloses

mixing and immersing, which would also cause at least some vibration.

It is argued that in rejecting claims 102-103... (see column 5, line 29). Claim 103 is now allowed, since it depends from an allowed base claim. Claims 80 and 102 are rejected for reasons already of record. The specific disclosures of the references are still relied upon and do not appear to be addressed by Applicant.

It is argued that again, since the Examiner has not applied Ichii against claim 73... This is not persuasive because the limitations of claim 73 are incorporated in claim 77, which is described (see above). The specific disclosures of Ichii outlined in the previous Office Action are still relied upon and do not appear to be addressed by Applicant. Applicant points out that Knapton does not disclose catalyst supporting. However, Knapton is not relied upon for catalyst supporting, which is disclosed in Ichii. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

It is argued that in rejecting claim 96, the Examiner alleges... a higher surface tension would have been obvious. This is not persuasive because Applicant's assertion that a lower surface tension is disclosed appears incorrect (applicant is invited to point out where such a disclosure is made) and because Knapton discloses water or an organic solvent (see column 2, lines 56-58), which would obviously, to one of ordinary skill, include organic solvents that have a higher surface tension than water.

It is argued that with respect to claims 98 and 99... recited in the claims. This is not persuasive for reasons already of record. The specific disclosures of the references are still relied upon and do not appear to be addressed by Applicant.

It is argued that as noted above, the Examiner has not applied Ichii against claim 73. This is not persuasive because the limitations of claim 73 are incorporated in claim 77, which is described (see above). The specific disclosures of Ichii outlined in the previous Office Action are still relied upon and do not appear to be addressed by Applicant and also because Applicant appears to admit that Abe discloses supercritical state for drying, which is part of the disclosed process for producing a supported catalyst.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward M. Johnson whose telephone number is 703-305-0216. The examiner can normally be reached on M-F 6:30-4:00.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley S. Silverman can be reached on 703-308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

EMJ

August 18, 2003


STANLEY S. SILVERMAN
SUPERVISORY PATENT EXAMINER
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